

FORM PTO-1220 (REV. 2-2001)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 865.41190X00 filed February 19, 2002	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U S APPLICATION NO (If known, see 37 CFR 1.5)	
INTERNATIONAL APPLICATION NO PCT/EP00/07621		INTERNATIONAL FILING DATE August 5, 2000		PRIORITY DATE CLAIMED August 19, 1999	
TITLE OF INVENTION METHOD AND DEVICE FOR PRODUCING A COMPOSITE NONWOVEN FOR RECEIVING AND STORING LIQUIDS					
APPLICANT(S) FOR DO/EO/US BOSCOLO, GIANNI					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below. 4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) a. <input type="checkbox"/> is transmitted hereto (required only if not communicated by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office(RO/US) 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). a. <input checked="" type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). Items 11 to 20 below concern document(s) or information included: 11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input checked="" type="checkbox"/> A change of power of attorney and/or address letter. 17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825. 18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 20. <input checked="" type="checkbox"/> Other items or information: International Publication No. WO 01/14624 cover sheet; Credit Card Payment Form; Figure 1					

U.S. APPLICATION NO. (if known see 37 CFR 1.5) 10/049846		INTERNATIONAL APPLICATION NO. PCT/EP00/07621		ATTORNEY'S DOCKET NUMBER 865.41190X00	
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21. The following fees are submitted.

BASIC NATIONAL FEE (37 CFR 1.492(a) (1) - (5)):

☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.\$1040.00

☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....\$890.00

☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO\$740.00

☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)..\$710.00

☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e))

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total Claims	6 - 20 =	0	x \$18.00	\$0.00
Independent Claims	1 - 3 =	0	x \$84.00	\$0.00
MULTIPLE DEPENDENT CLAIMS(S) (if applicable) 0			+ \$280.00	\$0.00
TOTAL OF ABOVE CALCULATIONS =				\$890.00
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$0.00
SUBTOTAL =				\$890.00
Processing fee of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$0.00
TOTAL NATIONAL FEE =				\$890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)) The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$0.00
TOTAL FEES ENCLOSED =				\$890.00

Amount to be refunded:

\$

charged:

\$

CALCULATIONS PTO USE ONLY

a ☐ A check in the amount of \$_____ to cover the fees is enclosed

b ☐ Please charge my Deposit Account No. **01-2135** in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed

c ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **01-2135**. A duplicate copy of this sheet is enclosed.

d ☒ Fees are to be charged to a credit card **WARNING:** Information on this form may become public **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

Antonelli, Terry, Stout & Kraus, LLP
1300 North Seventeenth Street
Suite 1800
Arlington, VA 22209
USA

SIGNATURE
 NAME
 32,087
 REGISTRATION NO.

865.41190X00

#4/a

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: BOSCOLO

Serial No.:

Filed: February 19, 2002

For: Method And Device For Producing A Composite Nonwoven
For Receiving And Storing Liquids

Group:

Examiner:

PRELIMINARY AMENDMENT

Assistant Commissioner
for Patents
Washington, D.C. 20231

February 19, 2002

Sir:

Prior to examination on the merits of this application and prior to calculation
of the filing fee, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend the claims to read as follows:

3. (Amended) Method according to claim 1, characterised in that to the wood pulp layer is applied a fourth layer as a cover layer and everything is together subjected to hydrodynamic needling for connection purposes.
4. (Amended) Device for accomplishing the method according to claim 1, characterised in that the continuous plant comprising firstly a web-laying device such as a carding machine (1-4) or a spunbonded fabric system to produce a carrier nonwoven, then, in order to reduce the loss of pulp fibres in the subsequent

$$\begin{aligned} & \frac{\partial}{\partial x_1} \left(\frac{x_1^2 + x_2^2}{2} \right) = x_1 \\ & \frac{\partial}{\partial x_2} \left(\frac{x_1^2 + x_2^2}{2} \right) = x_2 \\ & \frac{\partial}{\partial x_1} \left(\frac{x_1^2 - x_2^2}{2} \right) = x_1 \\ & \frac{\partial}{\partial x_2} \left(\frac{x_1^2 - x_2^2}{2} \right) = -x_2 \\ & \frac{\partial}{\partial x_1} \left(\frac{x_1^2 + x_2^2}{2} \right) = x_1 \\ & \frac{\partial}{\partial x_2} \left(\frac{x_1^2 + x_2^2}{2} \right) = x_2 \\ & \frac{\partial}{\partial x_1} \left(\frac{x_1^2 - x_2^2}{2} \right) = x_1 \\ & \frac{\partial}{\partial x_2} \left(\frac{x_1^2 - x_2^2}{2} \right) = -x_2 \end{aligned}$$

2

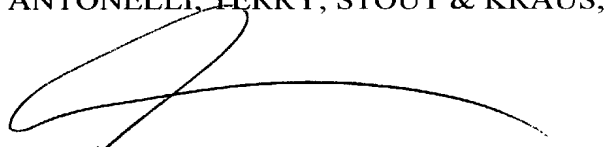
REMARKS

The foregoing amendments are respectfully requested prior to examination on the merits of this application. A marked up copy of the amended claims is attached.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 865.41190X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



Alan E. Schiavelli
Registration No. 32,087

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1/Potrs

**Method and device for producing a composite nonwoven
for receiving and storing liquids**

The invention relates to a method of producing a
5 composite nonwoven for receiving and storing liquids or
the like, comprising a carrier nonwoven which, to
consolidate it, is e.g. hydraulically needled, and a
pulp layer, such as a wood pulp layer, applied to the
consolidated carrier nonwoven and brought into secure
10 contact with same. A method of this type emerges from
EP 0 540 041. There the carrier nonwoven is
hydraulically needled, essentially not to consolidate
it but in order to increase the permeability of the
carrier nonwoven to liquid. To the carrier nonwoven
15 needled in this way is then applied the super-absorbent
pulp in a layer, and the two are brought into good
bonding contact and then the composite nonwoven is
dried.

20 It has become apparent that pure consolidation by
compression only produces an insufficiently secure
contact between the pulp and the carrier nonwoven. A
satisfactory connection of the wood pulp fibres to the
carrier nonwoven is known e.g. from US-A-3 560 326 or
25 WO 92/08834, specifically through hydraulic needling of
the wood pulp fibres with the consolidated carrier
nonwoven. This type of connection results in a high
loss of pulp fibres however. Tests have shown that up
to 12% of the wood pulp fibres are washed out of the
30 useful layer or bond and are thus lost for the
efficiency of the product. Moreover, in this process
very many pulp fibres get into the filtration,
necessary in the case of water needling, of the
circulating water. Due to the additional increased
35 outlay for the purification of the recycled water, the

product also becomes more expensive. Water needling at only a low water pressure does not produce the necessary strength; or a stronger carrier nonwoven causes costs which are too high.

5

The object underlying the invention is to develop a method and a device necessary for accomplishing this method, by means of which a wood pulp loss of this kind can be avoided during the working cycle of the
10 effective connection to the carrier nonwoven.

To solve the defined problem, provision is made according to the invention for a thin intermediate microfibre layer to be applied, e.g. using the
15 meltblown process, to the consolidated carrier nonwoven, and the layer of pulp fibres only to be applied to this intermediate layer and everything interconnected. Expediently, this connection is also effected by means of hydrodynamic needling. The
20 intermediate layer newly present in such a product acts furthermore advantageously as a barrier for the liquid to be received by the product. However, this barrier layer is not an airtight separating layer which would prevent the breathing activity of the product.

25

The production of a composite nonwoven solely from unconsolidated textile staple fibres or unconsolidated continuous polymer fibres together with a layer of meltblown microfibrils and the hydrodynamic needling of
30 these two layers to connect and consolidate the composite nonwoven is known from EP 0 418 493. There, however, this combination serves to produce a soft, dry nonwoven of a higher strength. Moreover, the nonwoven is intended to be so treated by means of water needling
35 that it has a region of higher strength and one of

lower strength. In the idea of the invention, on the other hand, the microfibre layer is intended to produce a separating layer for the wood pulp layer to be applied to it, so that during the process of consolidation by means of water needling, the wood pulp fibres are not washed into the fibres of the carrier layer and thus lost for the product to be produced, with resultant costs.

10 A nonwoven formed from polyester and/or polypropylene fibres can be considered as the carrier nonwoven. This nonwoven must be first hydraulically needled, i.e. consolidated. Then, to the thus stable carrier nonwoven, a thin layer of a microscopically fine fibre, 15 which is less than 1-5 μm thick, is sprayed onto the nonwoven in an even distribution. The cooling, ultra-fine fibres in a layer weighing between 1 and 4 g/m^2 , preferably 2 g/m^2 combine to form a type of film yet do not present any such absolutely dense layer. On this 20 barrier layer are then deposited the pulp fibres e.g. by means of the known air-lay method. This super-absorbent pulp layer is then connected by means of water needling to the carrier nonwoven which is covered by the intermediate microfibre layer, during which 25 process the fine pulp fibres can be no longer or only slightly washed through the carrier unit and thus are retained for the useful effect of the product.

A device for accomplishing the method of the invention 30 is represented in principle in the drawing by way of example.

First of all the carrier nonwoven has to be produced from the polyester fibres and/or the polypropylene 35 fibres. To this end, e.g. a carding machine 1-4 or a

spunbonded fabric system, not shown, serves as the web-laying device. The carding machine comprises a hopper feeder 1 with a vibrating chute 2 disposed below same which transfers the fibres spread evenly over the width
5 to the carding machine with the known carding and spiked rollers 3. The following continuous belt 4 transfers the laid carrier nonwoven to continuous belt 5 which runs first through a water needling device 6, only basically represented, for consolidation.
10 Needling on drums is also conceivable here, as is described in DE-A-197 06 610. In a continuous working cycle, a thin layer of ultra-fine fibres is now applied in an even distribution to the carrier nonwoven by means of device 7 which operates according to the
15 previously known meltblown process. These microfibres form a type of film, which consists however of individual fibres which are laid very closely to one another. On this barrier layer, the pulp fibres are now laid, using the air-lay process, by means of device
20 8 which is described in detail in EP 0 032 772. Thus the composite nonwoven is produced and only needs to be consolidated and dried. To this end it runs over path 9, shown in broken lines, to continuous belt 10 leading to the needling device 11 which can be constructed
25 similar to device 6. In the perforated drum dryer, the drying can be carried out in a continuous process.

However, it is possible, before the last needling process 11, to lay a further layer of a nonwoven as a
30 cover layer on the composite nonwoven after device 8, in order to bind the pulp fibres better into the end product and thus influence the linting. This purpose is then served by an additional carding machine 1', 3', by means of which an additional nonwoven is laid on the
35 top of the product. Here again, a spunbonded fabric

system is possible. Only then is the final water needling process 11 carried out with drying 12.

EP 000007621

21 May 2001
F 858 PCT

Patent claims

1. Method of producing a composite nonwoven for receiving and storing liquids or the like, comprising a carrier nonwoven, which is e.g. hydraulically needled to consolidate it, and a pulp layer, such as a wood pulp fibre layer applied to the consolidated carrier nonwoven and brought into secure contact with same, **characterised in that** a thin intermediate microfibre layer is applied to the consolidated carrier nonwoven, e.g. by means of the meltblown process, and the pulp fibre layer is first applied to this intermediate layer and everything is interconnected.
2. Method according to claim 1, **characterised in that** the pulp fibre layer is connected to the intermediate microfibre layer and additionally to the carrier nonwoven by means of hydrodynamic needling.
3. Method according to one of claims 1 to 2, **characterised in that** to the wood pulp layer is applied a fourth layer as a cover layer and everything is together subjected to hydrodynamic needling for connection purposes.

AMENDED PAGE

Replacement page

4. Device for accomplishing the method according to one of claims 1 to 3, **characterised in that** the continuous plant comprises firstly a web-laying device such as a carding machine (1-4) or a spunbonded fabric system to produce a carrier nonwoven, then, in order to reduce the loss of pulp fibres in the subsequent consolidation, a meltblowing device (7) to apply a fine intermediate layer formed from microfibres, then a device (8) to apply this pulp fibre (wood pulp) layer, and finally a water needling device (11) to connect the pulp fibres to the microfibres and possibly also the fibres of the carrier layer.
5. Device according to claim 5, **characterised in that** it is supplemented by a device, such as a carding machine (1', 3') or spunbonded fabric system, for applying a cover layer to the pulp fibre layer of the composite nonwoven, followed only then by the above-mentioned water needling device (11).
6. Device according to claim 4 or 5, **characterised in that** following the web-laying device (1-4) for the carrier nonwoven, first of all for pre-consolidating the carrier nonwoven, there is a water needling device (6) which is followed in line by the meltblowing device (7).

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES
PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro



(43) Internationales Veröffentlichungsdatum
1. März 2001 (01.03.2001)

PCT

(10) Internationale Veröffentlichungsnummer
WO 01/14624 A1

- (51) Internationale Patentklassifikation⁷: D04H 1/46, G. [IT/IT]; Viale Chiapel, 18, I-13856 Viagliano Biellese (IT).
1/56, 5/02, 1/42, 3/10, 13/00
- (21) Internationales Aktenzeichen: PCT/EP00/07621 (74) Anwalt: NEUMANN, Gerd; Albert-Schweitzer-Str. 1, D-79589 Binzen (DE).
- (22) Internationales Anmeldedatum: 5. August 2000 (05.08.2000) (81) Bestimmungsstaaten (national): BR, CA, CN, IL, JP, KR, US.
- (25) Einreichungssprache: Deutsch
- (26) Veröffentlichungssprache: Deutsch (84) Bestimmungsstaaten (regional): eurasisches Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- (30) Angaben zur Priorität: 199 38 809.1 19. August 1999 (19.08.1999) DE (71) Anmelder (für alle Bestimmungsstaaten mit Ausnahme von US): FLEISSNER GMBH & CO. MASCHINEN-FABRIK [DE/DE]; Wolfsgartenstr. 6, D-63329 Egelsbach (DE). ALBIS SPA [IT/IT]; SS 142. n. 102, I-13060 Roasio Curavecchia (IT).
- (72) Erfinder; und
- (75) Erfinder/Anmelder (nur für US): BOSCOLO, Gianni, Veröffentlicht: — Mit internationalem Recherchenbericht.
- Zur Erklärung der Zweibuchstaben-Codes, und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

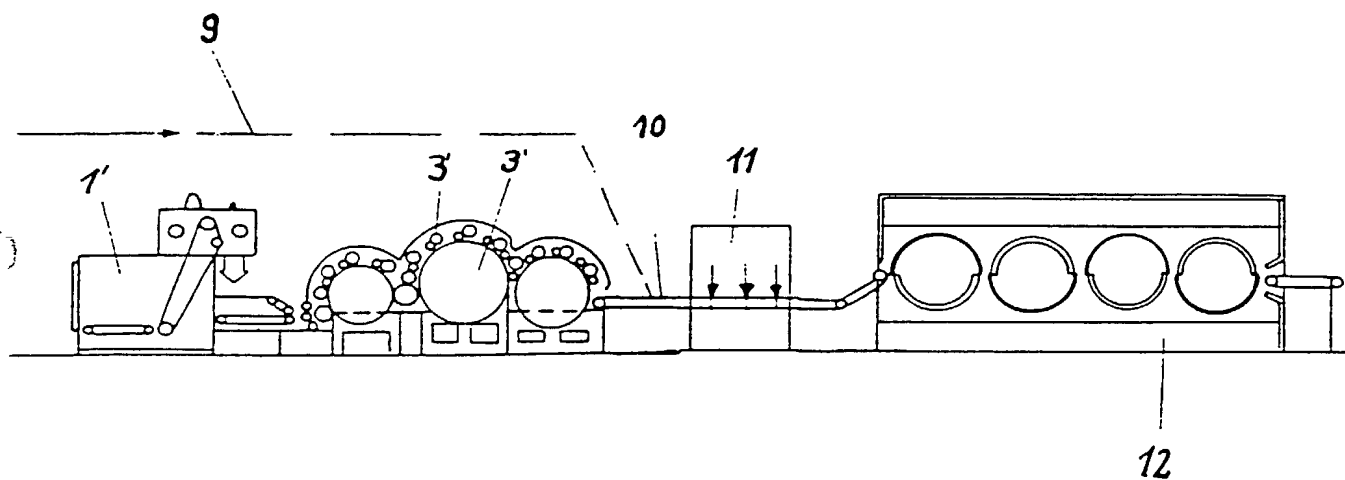
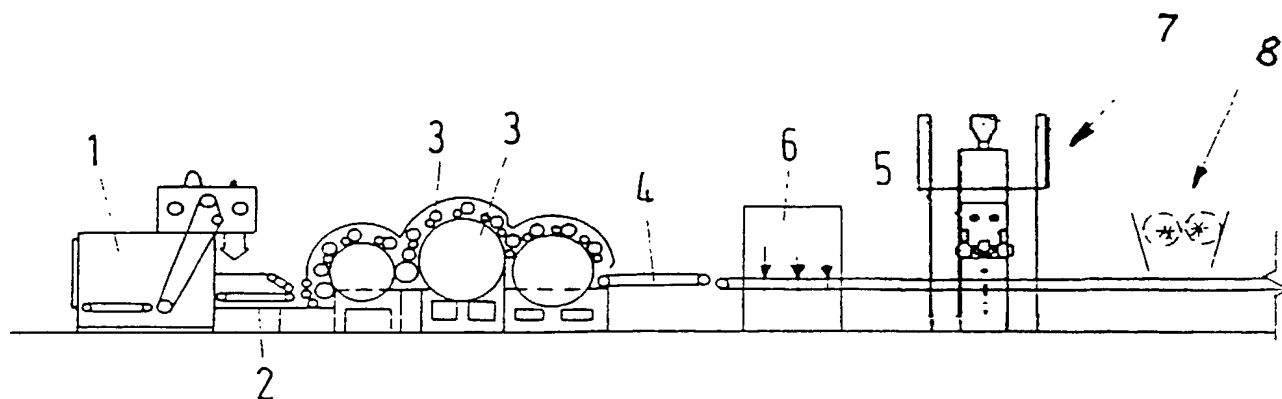
(54) Title: METHOD AND DEVICE FOR PRODUCING A COMPOSITE NONWOVEN FOR RECEIVING AND STORING LIQUIDS

(54) Bezeichnung: VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG EINES KOMPOSITVLIESES ZUR AUFNAHME UND SPEICHERUNG VON FLÜSSIGKEITEN

(57) Abstract: Known methods involve applying a layer of particularly highly absorbent fibers such as woodpulp on a carrier nonwoven and then compacting said composite nonwoven with the aid of water entanglement. One disadvantage of said compacting method is the high woodpulp fiber loss and the associated purification of the circulating water for the entanglement device. According to the invention, a fine layer of microfibers is initially applied before applying the woodpulp fibers. Said microfibers are evenly distributed on the carrier nonwoven using, for instance, a meltblown process and the woodpulp fibers are only then applied in the separating layer. The water during entanglement can no longer merge the woodpulp fibers into the carrier nonwoven due to the fact that the microfibers act as a barrier.

(57) Zusammenfassung: Es ist bekannt, auf ein Trägervlies eine Schicht aus besonders gut saugfähigen Fasern wie Woodpulp aufzugeben und dies Kompositvlies mittels einer Wasservernadelung zu verfestigen. Nachteilig bei diesem Verfestigungsverfahren ist der hohe Zellstofffaser-Verlust und die damit verbundene Reinigung des zirkulierenden Wassers für die Vernadelungsvorrichtung. Es wird vorgeschlagen, vor der Aufgabe der Zellstofffaser-Schicht zunächst eine feine Schicht aus Microfasern, die beispielsweise nach dem Meltblown-Verfahren gleichmäßig über das Trägervlies verteilt werden, auf das Trägervlies aufzugeben und erst dann die Zellstofffasern jetzt auf die Trennschicht aufzugeben. Das Wasser bei der Vernadelung kann jetzt die Zellstofffasern nicht mehr in das Trägervlies verschwämmen, die Microfasern dienen als Barriere.

WO 01/14624 A1





Attorney's Docket No.: 865.41190X00

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that: my residence, post office address and country of citizenship are as stated below, next to my name; I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which

is attached hereto.

☒

was filed on

February 19, 2002 as

United States Application Number 10/049,846or PCT International Application Number PCT/EP00/07621

and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed;

Prior Foreign Application(s)Priority
Claimed

<u>199 38 809.1</u> (Number)	<u>Germany</u> (Country)	<u>19 August 1999</u> (Day/Month/Year Filed)	<input checked="" type="checkbox"/> <u>Yes</u>	<input type="checkbox"/> <u>No</u>
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> <u>Yes</u>	<input type="checkbox"/> <u>No</u>

I hereby claim the benefit under title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below

(Application Number)

Filing Date

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Number)

Filing Date

(Status -- patented,
pending, abandoned)

(Application Number) Filing Date (Status -- patented,
pending, abandoned)

(Application Number) Filing Date (Status -- patented,
pending, abandoned)

I hereby appoint: Donald R. Antonelli, Reg. No. 20,296; Melvin Kraus, Reg. No. 22,466; William L. Solomon, Reg. No. 28,565; Gregory E. Montone, Reg. No. 28,141; Ronald J. Shore, Reg. No. 28,577; Donald E. Stout, Reg. No. 26,422; Alan E. Schiavelli, Reg. No. 32,087; James N. Dresser, Reg. No. 22,973; Carl I. Brundidge, Reg. No. 29,621; Paul J. Skwierawski, Reg. No. 32,173; and Robert M. Bauer, Reg. No. 34,487, my attorneys, of ANTONELLI, TERRY, STOUT & KRAUS, LLP with offices located at 1300 North Seventeenth Street, Suite 1800, Arlington, Virginia 22209, telephone: (703) 312-6600, fax: (703) 312-6666, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith. (1)

Send all correspondence to:

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TEL: (703) 312-6600
FAX: (703) 312-6666

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole/First Inventor Gianni BOSCOLO

1-0 Inventor's Signature [Signature] Date 18-11-2006
Residence Same as P.O. Box Address Citizenship Italian
(City, State) (Country)
Post Office Address Viale Chiapel, 18, I-13856 Viagliano Biellese, Italy

Full Name of Second/Joint Inventor _____

Inventor's Signature _____ Date _____
Residence _____ Citizenship _____
(City, State) (Country)
Post Office Address _____

Full Name of Third/Joint Inventor _____

Inventor's Signature _____ Date _____
Residence _____ Citizenship _____

Title 37, Code of Federal Regulations, Section 1.56
Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by 991.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
 - (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.
- (b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and
- (1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim;
- or
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

- (c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:
- (1) Each inventor named in the application;
 - (2) Each attorney or agent who prepares or prosecutes the application; and
 - (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.
- (d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.